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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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EX PARTE

MEETING WITH FCC COMMISSIONERS' STAFF, OFFICE OF ENGINEERING AND TECHNOLOGY, AND OFFICE OF PLANS AND POLICY

OCTOBER 28-29, 1992

PACTEL PAGING
Three Forest Plaza, SUITE 800
Dallas, Texas 75251

NARROWBAND PCS SERVICE
BAND PLAN CONSIDERATIONS

- **IN PACTEL'S VIEW, ANY BAND PLAN ADOPTED BY THE COMMISSION MUST**
  - **ALLOW A VARIETY OF NARROWBAND SERVICES REQUIRING DIFFERING BANDWIDTHS (25, 50, AND 100 KHZ) WITH 901-902 RESERVED FOR LOW POWER OPERATIONS**
    - **THESE BANDWIDTHS ARE SUFFICIENT TO SATISFY THE NEW SERVICES WHICH WILL BE OFFERED IN THIS BAND**
    - **THE CHANNEL WIDTH IN THE SUBSCRIBER-TO-NETWORK DIRECTION MUST BE SUFFICIENTLY LARGE TO PERMIT INEXPENSIVE SUBSCRIBER EQUIPMENT**
    - **MOST OF THE CURRENT PROPOSALS FOR THIS BAND CAN BE ACCOMMODATED USING THESE BANDWIDTHS IF SOME AGGREGATION IS PERMITTED**
  - **ALLOCATE SPECTRUM FOR BOTH FULL TWO-WAY SERVICES AND LIMITED TWO-WAY SERVICES**
  - **PROVIDE A SUFFICIENT NUMBER OF CHANNELS OF EACH BANDWIDTH TO PERMIT ROBUST COMPETITION AND THE GREATEST OPPORTUNITY FOR SERIOUS APPLICANTS TO RECEIVE AUTHORIZATIONS**
  - **PERMIT ESTABLISHED OPERATORS AND NEW ENTRANTS, AND LARGE COMPANIES AND ENTREPRENEURS, TO PARTICIPATE**
    - **THERE MUST BE NO LIMITATION ON WHO MAY APPLY FOR SPECTRUM**
    - **THE GEOGRAPHIC SCOPE OF THE AUTHORIZATION MUST NOT BE SO LARGE AS TO EXCLUDE ANY GROUP FROM APPLYING WHILE PROVIDING REGIONAL (MULTISTATE) AREAS FOR LICENSES**
- **PACTEL HAS DESIGNED A BAND ALLOCATION SCHEME WHICH ALLOCATES THE 3 MHZ OF 900 MHZ NARROWBAND PCS SPECTRUM (SEE ATTACHMENT 1)**

NARROWBAND PCS
LESSONS TO BE LEARNED FROM THE PAGING BUSINESS

- **THE COMMISSION SHOULD ADOPT A REGIONAL LICENSING PLAN FOR NARROWBAND PCS THAT PROVIDES FOR FROM 3 TO 5 LARGE GEOGRAPHIC REGIONS (SEE ATTACHMENT 2)**
- **APPLICANTS FOR NARROWBAND PCS LICENSES SHOULD BE REQUIRED TO DEMONSTRATE FINANCIAL ABILITY TO CONSTRUCT THE NARROWBAND LICENSE AWARDED**
- **APPLICANTS FOR NARROWBAND PCS SHOULD BE REQUIRED TO SUBMIT ENGINEERING SHOWING THE TRANSMITTER SITES, ETC. TO COVER 70% OF THE POPULATED AREA OF THE REGION WITH AN APPROPRIATE APPLICATION FEE**
- **THE CHANNEL PLAN SHOULD ALLOW MIGRATION OF EXISTING PAGING TECHNOLOGY TO NARROWBAND PCS SPECTRUM THROUGH THE ALLOCATION OF SOME 25 KHZ CHANNELS**
- **LICENSEES SHOULD BE ENCOURAGED TO ADOPT TECHNICAL STANDARDS WHICH WOULD ALLOW FOR ECONOMIES OF SCALE FOR SUBSCRIBER EQUIPMENT AND ROAMING**
- **NARROWBAND PCS SERVICE PROVIDERS WILL NEED TO BE ABLE TO EXPAND THEIR SERVICE OFFERINGS BY ADDING ADDITIONAL CHANNELS AND NOT REFARMING EXISTING CHANNELS**
- **THE COMMISSION MUST UNDERTAKE ALLOCATION ACTIONS WHICH WILL MINIMIZE THE PRICE OF THE SUBSCRIBER EQUIPMENT AND SERVICE COSTS**

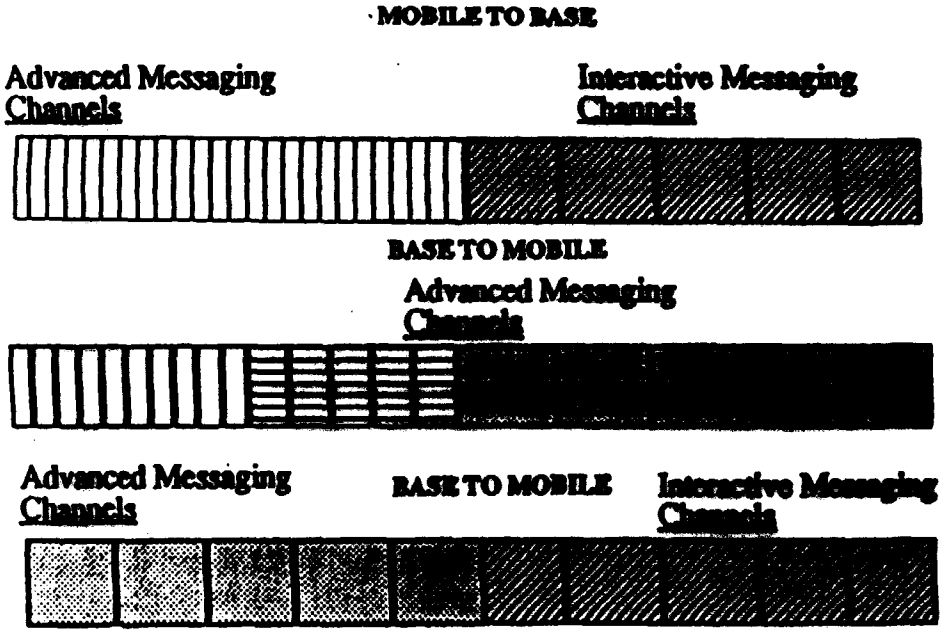
NARROWBAND PCS
ON GOING EXPERIMENTAL WORK

- **PACTEL MENTIONED IN AUGUST THAT IT HAD BEGUN THE SECOND PHASE OF ITS NARROWBAND PCS EXPERIMENTATION TO DEVELOP A SYSTEM TO DELIVER 19.2 K BAUD IN A 25 KHZ CHANNEL (38.4 K BAUD IN A 50 KHZ CHANNEL) TO SUBSCRIBERS IN AN UNFORMATTED FORM**
  - **THE CAPACITY OF THE SYSTEM WILL BE INCREASED EXPANDED EVEN FURTHER WITH THE USE OF AN ACKNOWLEDGEMENT/SETUP CHANNEL WHICH WOULD ALLOW THE MESSAGE TO BE TRANSMITTED ONLY IN THE METROPOLITAN AREA WHERE THE SUBSCRIBER IS LOCATED**
    - **ASSUMING ACKNOWLEDGEMENT/SETUP CHANNELS USED IN TOP 30 MARKETS, THEN CAPACITY OF SINGLE SYSTEM COULD BE INCREASED TO 5.4 MILLION SUBSCRIBERS PER CHANNEL WITH AVERAGE MESSAGE LENGTHS OF 5,000 BITS**
  - **THIS IS COMPARED TO TODAY'S SYSTEMS WHICH COULD SUPPORT LESS THAN 2,000 SUCH SUBSCRIBERS IN THE SAME BANDWIDTH -- A POTENTIAL 6,000% INCREASE IN CAPACITY**
  - **THIS SYSTEM USES THE FUNDAMENTAL RESEARCH CONDUCTED BY PACTEL ON [redacted]**

NARROWBAND PCS
ON GOING EXPERIMENTAL WORK (CONT'D)

- **THIS SYSTEM ALSO SATISFIES PACTEL'S OTHER CRITERIA**
  - **THE SYSTEM WILL BE ABLE TO GRACEFULLY GROW FROM LOW SPEEDS (2400 BAUD) TO MAXIMUM SPEEDS (19.2-26 K BAUD)**
  - **THE SYSTEM WILL SUPPORT MORE THAN ONE PAGING FORMAT AND SPEED**
- **PACTEL IS VERY EXCITED THAT THE FIRST OF THE TRULY NEW NARROWBAND PCS SERVICES IS ALMOST AVAILABLE**

Proposed Channel Scheme
Narrow Band PCS Spectrum



901-902 MHz.

25, 20 KHz. Advanced Messaging Channels paired with base-to-mobile Advanced Messaging Channels. (Unused channels to be available to current one-way licensees.)
5, 100 KHz Interactive Messaging Channels paired with base-to-mobile Interactive Messaging Channels.

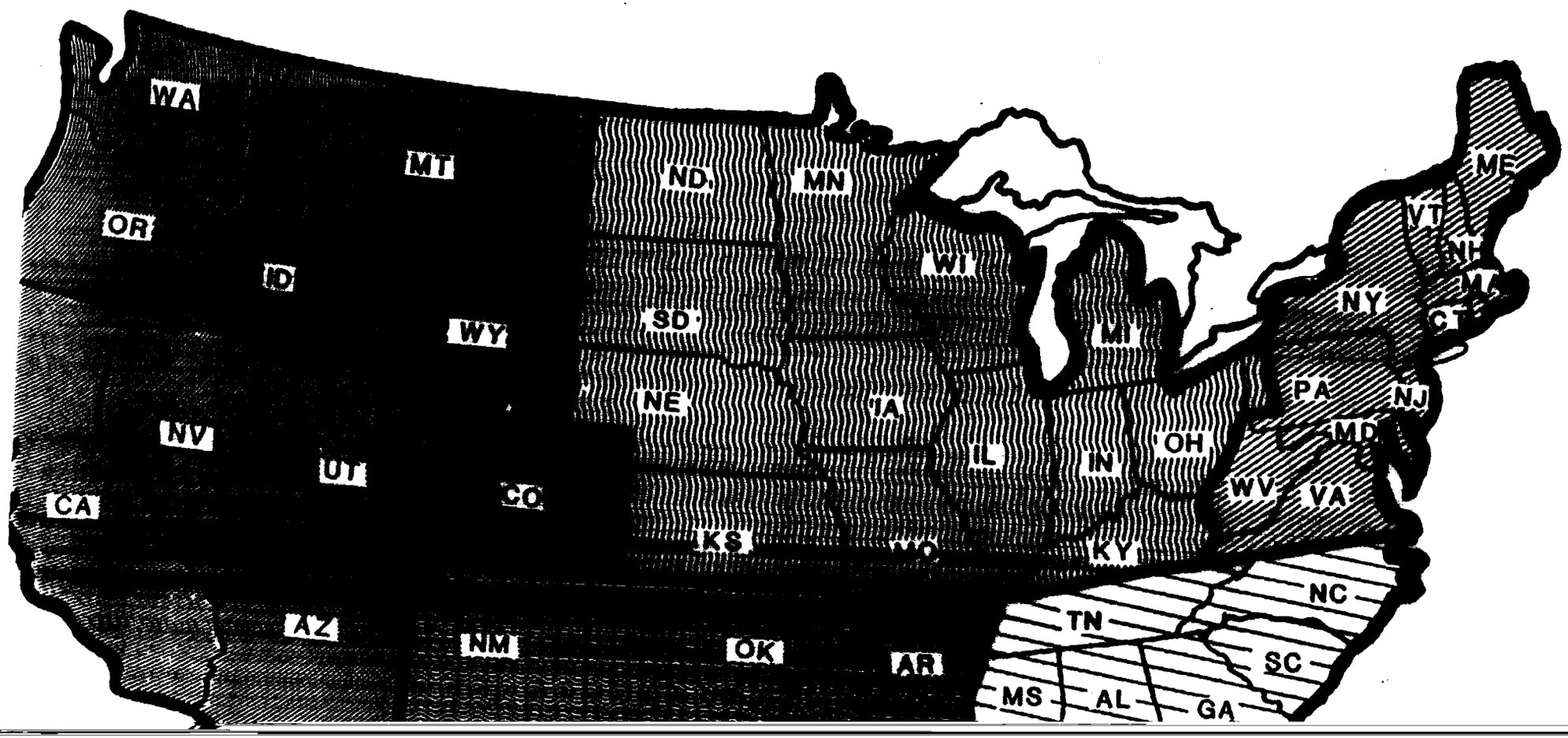
930-931 MHz.

5, 100 KHz Advanced Messaging Channels
5, 50 KHz Advanced Messaging Channels
10, 25 KHz Advanced Messaging Channels

940-941 MHz.

5, 100 KHz Advanced Messaging Channels
5, 100 KHz Interactive Messaging Channels

ATTACHMENT 2



Lessons to Be Learned From the Paging Business

In allocating spectrum in the 900 MHz bands for PCS services, the Commission should draw upon the experience gained in other land mobile services. In discussions with Commission personnel, PacTel Paging ("PacTel") has concluded that considerable attention has been paid to the experience gained from various two-way businesses (e.g. cellular, SMR). Less attention has been paid to the lessons that can be learned from the long history of the one-way industry.

Because of some inherent similarities between the family of services that can be provided in the narrowband PCS portion of the spectrum and which have been provided by traditional paging companies, the experience gained in the paging business is certainly relevant. The following summary, prepared based upon the substantial participation of PacTel as a major provider of such services, highlights the lessons the Commission can learn from the paging business:

I. **Market Demands Have Created a Handful of Large Geographic Area Regions.**

A. The PCS Notice seeks comment on four alternative geographic plans (nationwide, 49 Major Trading Areas, 194 LATAs or 488 Basic Trading Areas.) None of these demarcations bears any meaningful relationship to the natural service territories that have developed in the marketplace for messaging services.

B. All of the largest and most successful providers of paging services (e.g. PacTel Paging, PageNet, Metromedia Paging, MobilComm, McCaw Paging, Ameritech) have subdivided their operations into a handful of service regions to tailor their operations to market demands.

C. While there is a demand for nationwide paging service, the extent of the demand is modest compared to those seeking wide-area regional coverage.

D. In the absence of a licensing scheme that enables a carrier to be licensed as an initial matter for a sufficient geographic area, carriers are subjected to unnecessary expenses and delays in implementing wide-area

systems to meet customer demands, if indeed such systems can ever be effected through aggregation of smaller areas.

Conclusion: The Commission should adopt a regional licensing plan for narrowband PCS that provides for from 3 to 5 large geographic regions. Due to differences in system architecture, the same regions need not be adopted for wideband PCS.

II. Financial Wherewithal is a Key Ingredient to Success.

A. Financial showings were eliminated as an application requirement in the paging services in 1980, based upon a finding that service could be implemented on a low cost low risk basis. The business has changed significantly since that time.

B. Revenues per unit in the paging business have declined as operating expenses as a percentage of revenue have increased. As margins have decreased, volume must increase to sustain operations. The result: the emergence of mega-carriers which serve a large percentage of the paging market.

C. Economies of scale play an increasing role in the provision of paging services. Volume discounts in the purchase of carrier and subscriber equipment and operating efficiencies in the centralization of functions contribute to this fact.

D. Access to capital is increasingly important. Like other communications ventures, paging transactions are frequently highly leveraged and do not meet increasingly stringent banking ratios.

E. The proliferation of wide area systems has substantially increased the minimum investment necessary to establish a competitive service offering.

F. The successful providers of paging service are all well-financed and have the wherewithal to attract capital

Conclusion: Applicants for Narrowband PCS licenses should be required to demonstrate the financial ability to construct the system encompassed by the narrowband license that is awarded.

III. The Initiation of Reliable Service on a Broad Geographic Scale is Essential to Competitive Success.

A. Advanced messaging services will be competing with traditional messaging services for subscribers. In order to compete effectively, service areas must be competitive.

B. In the paging business, new entrants to a market generally succeed only when they initiate service on a system that is comparable or superior to existing carriers in the market, both in terms of quality and range of coverage.

C. Careful engineering is necessary to design a system that provides reliable real world coverage throughout a target service area.

Conclusion: Applicants for narrowband PCS should be required to submit detailed engineering showing the transmitter sites and operating parameters that will be used to cover 70% of the populated area of the requested region.

IV. 25 kHz of Spectrum Provides an Appropriate Building Block for Narrowband Services.

A. The paging industry has succeeded in delivering a broad array of innovative services within the confines of 25 kHz base transmit channels.

B. Much of the developmental work being performed for narrowband PCS services by manufacturers and service providers is focusing upon 25 kHz channels for base station transmissions.

C. PacTel has studied the prospects for increased transmission speeds and data delivery rates within 25 kHz of spectrum, and

has achieved significant advancements in the state of the art.

D. The vast majority of those seeking pioneer preferences for narrowband services propose 25 kHz base transmit channels. Those seeking more generally require increments of 25 kHz (e.g. MTEL at 50 kHz) that could be accommodated through a filing scheme that allows applicants to aggregate multiple 25 kHz blocks, or a channel plan that aggregates spectrum in increments of 25 kHz.

Conclusion: The narrowband PCS channel plan should encourage the implementation of advanced paging technology through the allocation of some 25 kHz channels.

V. Subscribers are Demanding Low Cost Alternatives.

A. Although the advent of cellular service was considered by some to be a threat to paging services, the dire predictions proved completely untrue. Paging providers have enjoyed explosive growth in parallel with the growth of cellular.

B. Economies of scale have enabled the cost of one-way subscriber units to fall below $100, opening up a vast consumer market.

C. The market for low cost personal communications devices is two-tiered: some use them as alternatives to higher cost services; others use them as adjunct services.

Conclusion: Licensees should be encouraged to adopt technical standards which allow for economies of scale in the production of subscriber equipment and facilitate roaming, both of which will foster lower costs units and services. The Commission also must undertake allocation actions which will minimize the price of subscriber equipment and service costs.

VI. Licensing Policies Must Allow For Future Channel Grants to Accommodate the Incremental Growth of Systems.

A. Unlike the cellular business where the licensee receives an initial grant of all the spectrum likely to be licensed over the life

of the system, paging systems have grown by the addition of channels over time as needed to meet increased demand.

B. Licensing policies which enable carriers to add spectrum at future dates to meet increased demand serve to reward efficient and successful operators who are providing a needed public service.

Conclusion: Narrowband PCS rules should enable providers to expand their service offerings by adding channels to existing systems over time.

FCC Authority and Standards for Imposing Application Fees

The past efforts of the Commission to discourage the filing of applications by insincere applicants for purely speculative purposes simply by adopting financial qualification standards, construction deadlines, brief application filing windows and restrictions on alienation have been largely unsuccessful. The experiences in the cellular RSA lotteries, the 220 to 222 MHz private radio filings, and the IVDS lotteries all indicate that application preparers and applicant speculators are undeterred by licensing mechanisms of this nature.

The Commission has, however, previously recognized one solution to its problem. In adopting the cellular RSA rules, the agency properly acknowledged that "[a] larger filing fee would probably reduce the number of RSA applications filed". Third Report and Order, 2 FCC Rcd 2440, 2447 n. 16 (1988). This is certainly true. Unscrupulous application mills would be less successful in hawking FCC filing opportunities as "get rich quick" schemes if investors had to lay out substantial money on the front end to participate. Also, insincere applicants with no wherewithal, and no business plan which would enable them to attract investor capital, would be less likely to participate if there was a substantial entry fee.

PacTel Paging believes the Commission has the statutory authority to set narrowband PCS fees at a sufficiently high level

to discourage insincere applicants without eliminating meaningful licensing opportunities for small businesses, entrepreneurs and new market entrants. This memorandum explores this issue.

I. Statutory Authority for Regulatory Fees

In 1985, Congress amended the Communications Act of 1934, 47 U.S.C. §§ 151, et seq. (the "Communications Act") by adding a new Section 8. Comprehensive Omnibus Budget Reconciliation Act of 1985, 100 Stat. 82, 118-21, Pub. L. 99-272, §§ 5002(e), (f) (the

Section 8 further requires the Commission to review the Schedule of Charges every two years and to make fee adjustments in accordance with a formula based upon changes in the Consumer Price Index. 47 U.S.C. § 158(b)(1). Any fee increase or decrease resulting from this review is not subject to judicial review. 47 U.S.C. § 158(b)(2).

In 1989, Congress approved increases in the Schedule of Charges. Omnibus Budget Reconciliation Act of 1989, 103 Stat. 2124, Pub. L. 101-239, § 3001 (the "1989 Budget Act"). The legislative history of the 1989 Budget Act establishes that these fees are based upon estimates of the cost to the Commission of regulating different services. H. Rep. No. 101-247, 101st Cong., 1st Sess. 3, reprinted in 1989 U.S. Code Cong. & Admin. News 1906, 2267. "[F]ees based on cost of regulatory principles are an appropriate mechanism by which a portion of the FCC's regulatory expenses may be recaptured. The Committee made an explicit decision to meet its Reconciliation obligations by retaining a fee structure that is based on the cost of regulation. In order to accomplish this objective, the Committee adopted the increases in fees which the FCC was implementing under its discretionary authority...." Id. at 2267.

II. Fee Programs Established Under Authority of Section 8 of the Communications Act

Following enactment of the 1985 Budget Act and Section 8 of the Communications Act, the Commission issued a Notice of Proposed Rule Making seeking comment on the new statutory

provisions. Establishment of a Fee Collection Program to Implement the Provisions of the Consolidated Omnibus Budget Reconciliation Act of 1985, 51 FR 25792 (July 16, 1986). In the NPRM, the Commission stated that the statutory schedule of charges is "based primarily on the Commission's cost of providing [regulatory] services," and that "[e]ach fee is intended to recover only those costs attributable to providing the [regulatory] service to the public." 51 FR 25792 at ¶¶ 7, 19.

With respect to fee amounts, the Commission stated that it would "not consider comments directed toward changing the dollar amount of the fees." 51 FR at 25793 ¶ 6. The Commission's rationale for this decision was that it had "worked extensively with [communications providers] and Congress prior to the passage of this legislation to ensure that the charges, to the extent possible, reflect the cost of processing authorizations to the Commission. The fees set out in the Schedule of Charges represent a congressional determination that these charges represent the best approximation of our processing costs."[2/] Id.

The Commission ultimately affirmed that its "charges are based primarily on the Commission's cost of providing ...

2/ The Commission noted that Congress "had available to it FCC Staff cost analyses prepared for the Fee Refund program and later updated to factor in new services, changes in application processing technology, personnel cost, etc." 51 FR at 25793 ¶ 24 and n.30 (citing the Notice of Inquiry, Fee Refunds and Future FCC Fees, 69 FCC 2d 741, 747-755 (1978), regarding cost calculation).

regulatory services." Establishment of a Fee Collection Program to Implement the Provisions of the Consolidated Omnibus Budget Reconciliation Act of 1985 ("Fees I"), 2 FCC Rcd 947, 948 (1987), Supplemental Order, 2 FCC Rcd 1882 (1987), recon. granted in part, 3 FCC Rcd 5987 (1988). In response to comments "that certain fees are too high or have no link to processing costs," the Commission stated only that "these fees are now statutory and may be changed only through a future action by the Congress. We recognize that some of the underlying processing costs and procedures on which we based our fee recommendations to Congress have changed or will change in the future.... Thus, the Commission's processing costs were but one factor in the rough calculus that resulted in the legislated fees." 2 FCC Rcd at 948-949.

Addressing Petitions for Reconsideration of the Fees I decision, the Commission acknowledged complaints "that a given fee in no way reflects the amount of actual effort expended by the Commission on a particular application or type of application," but again explained "that the amount of the fee represents the Commission's estimate, accepted by Congress, on the average cost to the Commission of providing the service." 3 FCC Rcd 5987, 5987 (1988).

As noted, the 1989 Budget Act increased all existing fees and imposed new fees on additional regulatory services. The result was a doubling of revenues from the fee program and a nearly threefold increase in the number of applications requiring

fees. Establishment of a Fee Collection Program to Implement the Provisions of the Omnibus Budget Reconciliation Act of 1989 ("Fees II"), 5 FCC Rcd 3558 (1990), recon. granted in part, 6 FCC Rcd 5919 (1991). The Commission again noted that it had "worked with Congress to ensure that, to the best extent possible, fees reflect only the direct cost of processing the typical application or filing." 5 FCC Rcd at 3574.[3/] The new fee schedule established multiples of a fee based on the number of frequencies, stations, call signs, waivers, etc. requested by an applicant. Id.

As explained below, recent Commission proceedings cite the statutory Schedule of Charges as authorizing the application

B. Part 22: The Commission's initial fees for cellular systems and domestic public land mobile radio services ("DPLMRS") were established in the fee program proceeding instituted after the 1985 Budget Act passed. See 2 FCC Rcd at 971-72. With respect to the fee of $200 per transmitter in the DPLMRS, the Commission stated that "[c]onsistent with the Communications Act's mandate to require these fees on the basis of the number of transmitters requested, we will require that applicants submit $200 for each such transmitter listed on Form 401." Id. at 972. The Commission cited the "Conference Report at [page] 429." Id. at 972, 986 n.185.

With respect to cellular, the Commission initially adopted a fee of $200 per cellular system. 2 FCC Rcd at 972. In the Third Report and Order in the cellular rulemaking proceeding, the Commission declined to adopt higher application fees, which had been proposed as a method of deterring speculative applications, finding that "imposition of the $200 filing fee has [not] caused a significant reduction in the number of applications filed." 4 FCC Rcd 2440, 2442 (1988). The Commission did concede that "[a] larger filing fee would probably reduce the number of RSA applications filed," id. at 2447 n.16, but stated that "the fee is set by Congress" and could only be increased pursuant to 47 U.S.C. § 158(b)(1). Id.

C. Part 21: The Commission did not change filing fees for applications for Part 21 authorizations when it adopted a one-step licensing procedure to replace the old procedure

whereby applicants first filed an application for a construction

Commission stated "[t]hese initial fees are consistent with our fee schedule." Id. In a Memorandum Opinion and Order addressing Petitions for Reconsideration of the Report and Order, the question of fees and fee amount did not arise. 7 FCC Rcd 4484 (1992).

E. IVDS: Here, the Commission stated that "because the service is being regulated as a personal service under Part 95..., applicants must pay a fee of $35.00 per call sign (i.e., per [Cell Transmitter Station]." Interactive Video and Data Services, 7 FCC Rcd 1630, 1639 (1992). However, this is problematic because an IVDS applicant is required to file only one Form 155 (a fee form) regardless of the number of CTSs it

approach to determine the filing fee in other private radio services where the applicant files a Form 155," citing the 220-222 MHz proceeding. 7 FCC Rcd 4923, 4925, FCC 92-331, ¶ 15 (rel. August 4, 1992). The Commission also stated that it arrived at the $1400 figure after considering, among other things, the problems associated with having different filing fees for different markets. Id.

F. PCS: In the PCS NPRM, the Commission proposes that if lottery selection procedures are used, "application fees be calculated using a procedure similar to that used" in licensing the 220-222 MHz band. FCC 92-333 ¶ 89. "Applying the same methodology to 2 GHz PCS would result in an application fee of approximately $3 million, for example, for a nationwide license to operate on one of the 30 megahertz blocks if such licenses are authorized. This figure is based on an assumption of 1200 channel pairs (12.5 kHz bandwidth) times 70 markets (as assumed for 220 MHz nationwide licenses) times $35 per call sign, yielding a total application fee of $2.94 million." Id. The Commission noted, "[t]hese calculations assume that PCS is defined as a private radio service. If it is classified as a

call sign or per transmitter basis, by making reasonable assumptions regarding the scope of the authorized system. In this instance, the ultimate question of whether PCS should be regulated as a private or common carrier service should take into consideration the fact that higher revenues will be generated if the service is classified as common carriage.

The Commission's ultimate objective should be to foster a ubiquitous narrowband PCS service. These means coverage throughout the 3,622,205 square miles of land and water which are encompassed within the territorial boundaries of the United States. A simple calculation provides an approximation of the number of transmitters that would be required to effect this goal. The narrowband PCS technical rules are proposed to be patterned after the Part 22 standards for 900 Mhz paging stations. PCS Notice, paras. 125-126. A class L station under these rules has a defined service area with a radius of 20 miles. See FCC Rules, Section 22.504(b)(2). This service area can be calculated to cover approximately 1256 square miles.[4/] By dividing the total square miles in the United States by the coverage of a typical station, one can conclude that the minimum number of transmitter sites required to cover the country would be 2,884 (3,622,205 divided by 1256 = 2883.93). Assuming an application fee of $230.00 per transmitter site, the appropriate

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4/ This is premised on using the formula for the area of a

fee for a nationwide 25 kHz channel could reasonable set at $663,320. If the nation were divided into from three to five regions for narrowband filings, fees on the order of $221,107 to $132,664 would be in order.

Actually, these calculations could be considered conservative. Since reliable service area contours are circular, complete coverage can be effected only by having a certain degree of overlap in adjoining contours. PacTel is in the process of refining its calculations to more closely approximate the estimated number of transmitters it would take to provide coverage of the United States. Preliminarily, PacTel anticipates a nationwide filing fee on the order of magnitude of $1,000,000 once the need for overlap is factored in.

PacTel understands, of course, that actual coverage will not precisely correspond to this idealized grid. However, the analysis can provide a reasonable basis for establishing a per transmitter fee in conjunction with a licensing scheme in which large amounts of geography are to be encompassed by a single license.